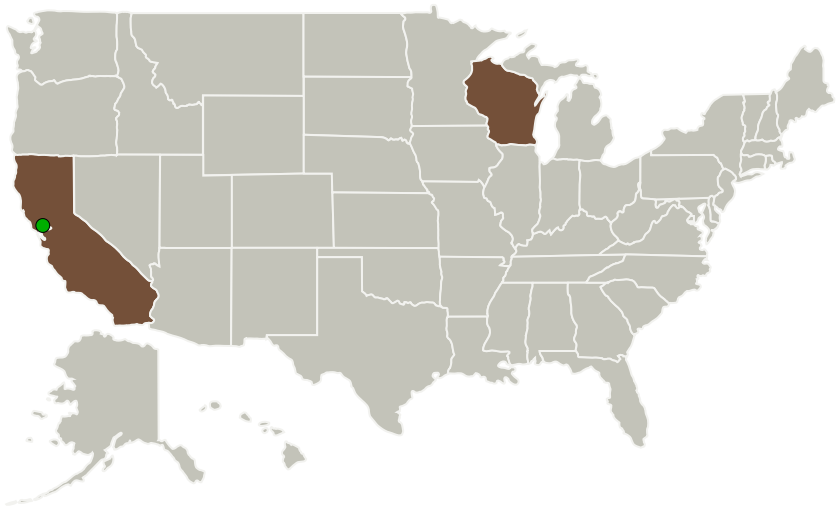
Zero G Mass Measurement Device (ZGMMD), Phase II

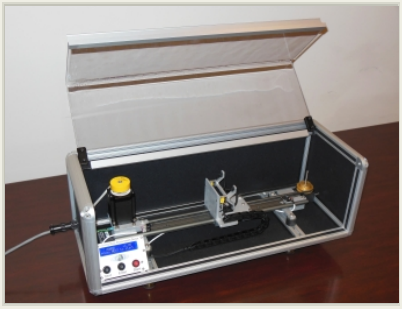
Completed Technology Project (2014 - 2017)

Project Introduction

The Zero Gravity Mass Measurement Device (ZGMMD) provides the ability to measure the mass of samples in a microgravity environment, like that found on the International Space Station (ISS). One of the primary measurements often taken during science experiments is mass. This is even more relevant in biology, where mass is often one of the key measurements taken for analysis. During the Phase I effort, a ZGMMD prototype was developed, tested, and demonstrated the feasibility of a means to determine the mass of samples less than 1kg, without the use of earth's gravity. The ZGMMD's innovative way of determining the mass, of low mass objects, in microgravity environments has been shown to be feasible, and effective. The Phase I prototype has shown to be able to provide great mass measurement capabilities, exceeding the Phase I requirements, specifically in accuracy and precision.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Sierra Nevada Corporation(SNC)	Lead Organization	Industry Women-Owned Small Business (WOSB)	Sparks, Nevada
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California
Orbital Technologies Corporation	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Madison, Wisconsin

Primary U.S. Work Locations	
California	Wisconsin

Project Transitions

June 2014: Project Start

September 2017: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137761)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Sierra Nevada Corporation (SNC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

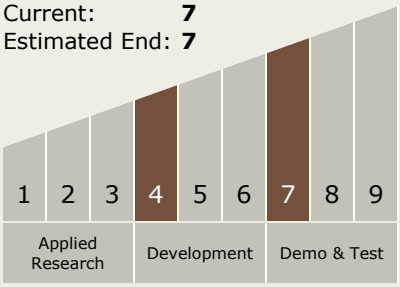
Carlos Torrez

Principal Investigator:

Robert C Richter

Technology Maturity (TRL)

Start: **4**
Current: **7**
Estimated End: **7**



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Images

Briefing Chart Image
Zero G Mass Measurement Device (ZGMMD), Phase II
(https://techport.nasa.gov/image/129324)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System